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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,766	04/18/2001	Claus-Jorg Weiske	P01.0059	4661

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EXAMINER

MEW, KEVIN D

ART UNIT	PAPER NUMBER
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2664

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/807,766	Applicant(s) WEISKE ET AL.	
	Examiner Kevin Mew	Art Unit 2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-13 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/18/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3</u> | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Claim Objections

1. Claim 9 is objected to because of the following informalities: the first term "total" in line 2 of the claim should be deleted as it duplicates the meaning of the second term "total" in the same line. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 8-9, 11-12** are rejected under 35 U.S.C. 102(e) as being anticipated by the admitted prior art, Bayart et al. (USP 5,815,299).

Regarding claim 8, Bayart discloses a method for channel-specific adjustment of transmitted signal power levels in an optical wavelength-division multiplex transmission system (optical frequency division multiplexed transmission system for equalizing power levels of channels, see col. 2, lines 8-10), the method comprising the steps of:

determining transmission characteristics for each transmission channel
(determining the wavelengths of waves that corresponds to the channels, see col. 3, lines 58-60), determining on a channel-specific basis, signal power levels of associated transmitted signals (determining power level of each channel of an OFDM signal, see col.

1, lines 62-63), if the signal power levels or the signal-to-noise ratios of individual received signals are the same (control logic 20 determines the difference between the lowest level and an average power level obtained from the power levels of the other channels, see col. 6, lines 56-60);

determining the transmission-end dynamic range (difference between the average power level determined from the power levels of said channels having high power levels and the channel having lowest power level, see col. 7, lines 61-67), if a maximum permissible dynamic range (threshold value) at the transmission end is exceeded (control logic 20 would resume channel power level equalization as soon as the threshold value is exceeded by the difference, see col. 7, lines 1-7), determining individual power discrepancies of the transmitted signals (determines the attenuation applied to channels having high power levels that are high relative to channel of lowest power level) from the mean transmitted signal power level (from the average power level determined from the power levels of said channels having high power levels);

reducing by calculation the individual power discrepancies of the transmitted signals (attenuation applied to channels having high power levels that are high relative to reference level consisting of the power level of the channel having the lowest power level, see col. 7, lines 61-64) using a transmission compression factor (using the attenuation obtained between an average power level determined from power levels of channels having high power and reference level, see col. 7, lines 64-67), which is the same for all the transmitted signals,

complying with the maximum permissible dynamic range such that the required transmission signal power levels are recalculated (attenuation applied to channels having higher power levels corresponds to the difference between an average power level determined from the power levels of channels having high power and lowest power reference level, see col. 7, lines 61-67), and

setting newly calculated compressed transmitted signal power levels (attenuation applied to channels having power levels that are high relative to the channel with lowest power level, see col. 7, lines 61-64).

Regarding claim 9, Bayart discloses the method as claimed in claim 8, further comprising the step of:
keeping a total maximum permissible total transmitted signal power level of all the transmitted signals at least approximately constant (all of the channels are finally at a power level that is at least approximately the same, see col. 2, lines 37-38; note that having all signals at about the same power level means that the total transmitted power level of all transmitted signals would approximately remain constant).

Regarding claim 11, Bayart discloses a method for channel-specific adjustment of transmitted signal power levels in an optical wavelength-division multiplex transmission system (OFDM transmission system for equalizing power levels of channels, see col. 2, lines 8-10), the method comprising the steps of:

determining transmission characteristics for each transmission channel (determining the wavelengths of waves that corresponds to the channels, see col. 3, lines 58-60), determining on a channel-specific basis, signal power levels of associated transmitted signals (determining power level of each channel of an OFDM signal, see col. 1, lines 62-63), if the signal power levels or the signal-to-noise ratios of individual received signals are the same (control logic 20 determines the difference between the lowest level and an average power level obtained from the power levels of the other channels, see col. 6, lines 56-60);

determining the reception-end dynamic range (difference between the average power level determined from the power levels of said channels having high power levels and the channel having lowest power level, see col. 7, lines 61-67), if a maximum permissible dynamic range (threshold value) at the transmission end is exceeded (control logic 20 would resume channel power level equalization as soon as the threshold value is exceeded by the difference, see col. 7, lines 1-7), determining individual power discrepancies of the transmitted signals (determines the attenuation applied to channels having high power levels that are high relative to channel of lowest power level) from the mean transmitted signal power level (from the average power level determined from the power levels of said channels having high power levels);

reducing by calculation individual power discrepancies of the received signals using a compression factor which is the same for all received signals, such that a maximum permissible dynamic range at the reception end is complied with (attenuation applied to channels having higher power levels corresponds to the difference between an

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average power level determined from the power levels of channels having high power and lowest power reference level, see col. 7, lines 61-67);

calculating the required new transmitted signal power levels (control logic 20 determines the difference between the lowest level and an average power level obtained from the power levels of the other channels, see col. 6, lines 56-60), if necessary.

carrying out transmission-end power correction using a transmission-end correction factor which needs to be calculated (attenuation applied to channels having power levels using the attenuation obtained between an average power level determined from power levels of channels having high power and reference level, see col. 7, lines 61-67), and

setting newly calculated compressed transmission signal power levels (attenuation applied to channels having power levels that are high relative to the channel with lowest power level, see col. 7, lines 61-64).

Regarding claim 12, Bayart discloses the method as claimed in claim 11, further comprising the step of:

keeping a total received signal power level of all received signals and/or the total transmitted signal power level of all transmitted signals at least approximately constant (all of the channels are finally at a power level that is at least approximately the same, see col. 2, lines 37-38; note that having all signals at about the same power level means that the total transmitted power level of all transmitted signals would approximately remain constant).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 10, 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bayart et al. in view of the admitted prior art, Taga et al. (USP 5,790,289).

Regarding claim 10, Bayart discloses all the aspects of claimed invention set forth in the rejection of claim 9 above, except fails to disclose the method as claimed in claim 9, further comprising the step of:

determining transmitted signal power levels of the transmitted signals and transmission-end values derived therefrom by measuring the received signal power levels of the received signals and from the transmission characteristics of the transmission channels.

However, Taga discloses a WDM optical communication method to adjust transmission power level in order to correct a difference between signal-to-noise levels of WDM optical signals at a WDM optical receiving terminal (see col. 10, lines 13-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the power level equalization in the optical frequency division multiplexed transmission system of Bayart with the transmission power level adjustment method of Taga such that the transmitted signal power levels of the transmitted signals and transmission-end values in the system of Bayart are derived

by measuring the received signal power levels of the received signals and from the signal-to-noise ratio of the transmission channels. The motivation to do so is to correct a difference between signal-to-noise ratios of optical signals so that the total power of all optical signals is steadily maintained at the optical transmitting terminal.

Regarding claim 13, Bayart discloses all the aspects of claimed invention set forth in the rejection of claim 12 above, except fails to disclose the method as claimed in claim 12, further comprising the step of:

determining the transmitted signal power levels of the transmitted signals and transmission-end values, derived from them, by measurement of the received signal power levels of the received signals and from the transmission characteristics of the transmission channels.

However, Taga discloses a WDM optical communication method to adjust transmission power level in order to correct a difference between signal-to-noise levels of WDM optical signals at a WDM optical receiving terminal (see col. 10, lines 13-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the power level equalization in the optical frequency division multiplexed transmission system of Bayart with the transmission power level adjustment method of Taga such that the transmitted signal power levels of the transmitted signals and transmission-end values in the system of Bayart are derived by measuring the received signal power levels of the received signals and from the signal-to-noise ratio of the transmission channels. The motivation to do so is to correct a

difference between signal-to-noise ratios of optical signals so that the total power of all optical signals is steadily maintained at the optical transmitting terminal.

Allowable Subject Matter

4. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 14, the method as claimed in claim 13, further comprising the steps of:
calculating the transmission-end correction factor from the ratio of a previous transmission-end mean level value to a transmission-end mean level value determined from a new transmitted signal power level, changing the individual signal power levels of transmitted signals using the transmission-end correction factor, which is the same for all transmitted signals.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 703-305-5300. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'W. Chin', with a long horizontal line extending to the right.

KDM
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